

Cisco Gigabit Ethernet Switch Module for HP BladeSystem p-Class Hardware Installation Guide



February 2005 (First Edition)
Part Number 380264-001

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About This Guide

This guide can be used for reference when servicing the Cisco Gigabit Ethernet Switch Module (CGESM).



WARNING: To reduce the risk of personal injury from electric shock and hazardous energy levels, only authorized service technicians should attempt to repair this equipment. Improper repairs can create conditions that are hazardous.

Technician Notes



WARNING: Only authorized technicians trained by HP should attempt to repair this equipment. All troubleshooting and repair procedures are detailed to allow only subassembly/module-level repair. Because of the complexity of the individual boards and subassemblies, no one should attempt to make repairs at the component level or to make modifications to any printed wiring board. Improper repairs can create a safety hazard.



WARNING: To reduce the risk of personal injury from electric shock and hazardous energy levels, do not exceed the level of repairs specified in these procedures. Because of the complexity of the individual boards and subassemblies, do not attempt to make repairs at the component level or to make modifications to any printed wiring board. Improper repairs can create conditions that are hazardous.



CAUTION: To properly ventilate the system, you must provide at least 3.0 in (7.6 cm) of clearance at the front and back of the switch.

NOTE: Any indications of component replacement or printed wiring board modifications may void any warranty.

Where to Go for Additional Help

In addition to this guide, the following information sources are available at <http://www.hp.com/support>:

- *Cisco Gigabit Ethernet Switch Module for HP BladeSystem p-Class Software Configuration Guide*
- *Cisco Gigabit Ethernet Switch Module for HP BladeSystem p-Class Command Reference Guide*
- *Cisco Gigabit Ethernet Switch Module for HP BladeSystem p-Class System Message Guide*
- *Cisco Gigabit Ethernet Switch Module for HP BladeSystem p-Class Quick Setup Instructions*
- *Cisco Gigabit Ethernet Switch Module for HP BladeSystem p-Class SAN Connectivity Kit Quick Setup Instructions*
- *Cisco Small Form-Factor Pluggable Modules Installation Instructions*

Refer also to the *Cisco IOS Release 12.2* documentation, which is located at:

<http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/index.htm>

Telephone Numbers

For the name of the nearest HP authorized reseller:

- In the United States, call 1-800-345-1518.
- In Canada, call 1-800-263-5868.
- In other locations, refer to <http://www.hp.com>.

For HP technical support:

- In North America:
 - Call 1-800-HP-INVENT (1-800-474-6836). This service is available 24 hours a day, 7 days a week. For continuous quality improvement, calls may be recorded or monitored.
 - If you have purchased a Care Pack (service upgrade), call 1-800-633-3600. For more information about Care Packs, refer to <http://www.hp.com>.
 - Outside the United States and Canada, call the nearest HP Technical Support Phone Center. For telephone numbers for worldwide Technical Support Centers, refer to <http://www.hp.com>

Product Overview

Overview

The Cisco Gigabit Ethernet Switch Module (CGESM)—also referred to as *the switch*—is an Ethernet switch to which you can connect devices such as servers, routers, and other switches. This chapter provides a functional overview of the switch. These topics are included:

- Switch Connectivity
- Front Panel
- Rear Panel
- MAC Address
- Management Options

Switch Connectivity

The physical connections between server blade network interface controllers (NICs) and switch ports depend on the server blade type and the enclosure backplane type, as described below. The logical NIC name enumeration depends on the operating system software (i.e. Local Area Connection, Local Area Connection 2, etc. for Windows; eth0, eth1, etc. for Linux). Use the HP Ethernet Connectivity Mapper to determine the NIC name enumeration and the associated mapping to switch ports.

NOTE: The HP Ethernet Connectivity Mapper is available for download at <http://www.hp.com/support>.

The following diagram illustrates the Ethernet signal connectivity between server bays and the interconnect bays via the backplane for the p-Class server enclosure.

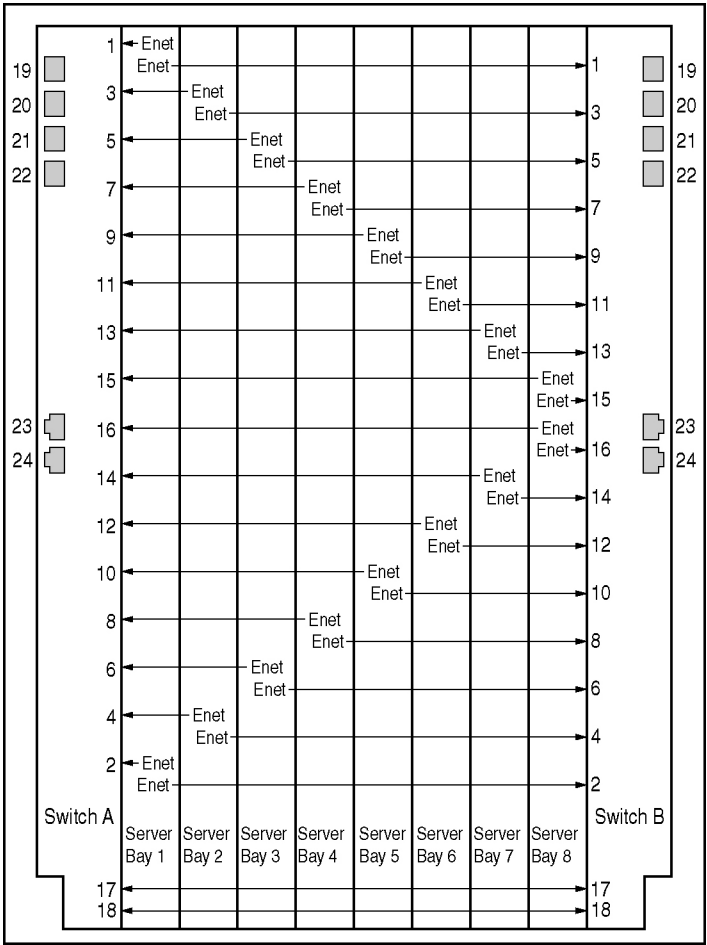
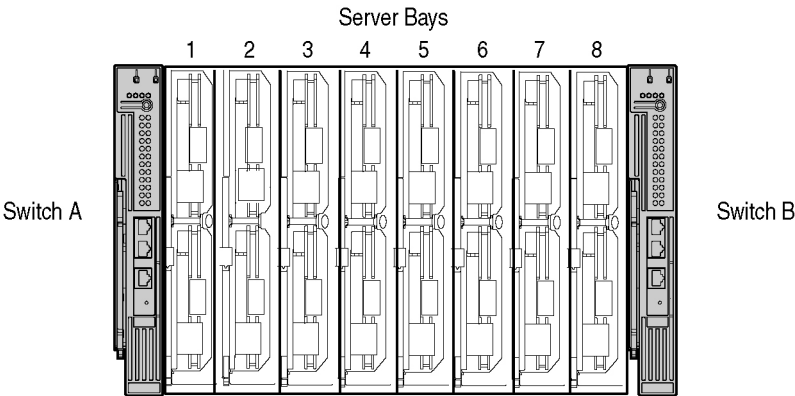


Figure 1-1: Ethernet Signal Connectivity via Backplane

The following diagram illustrates the Ethernet signal connectivity between server bays and the interconnect bays via the backplane for p-Class server enclosures with enhanced backplane components that support high-density blade servers.

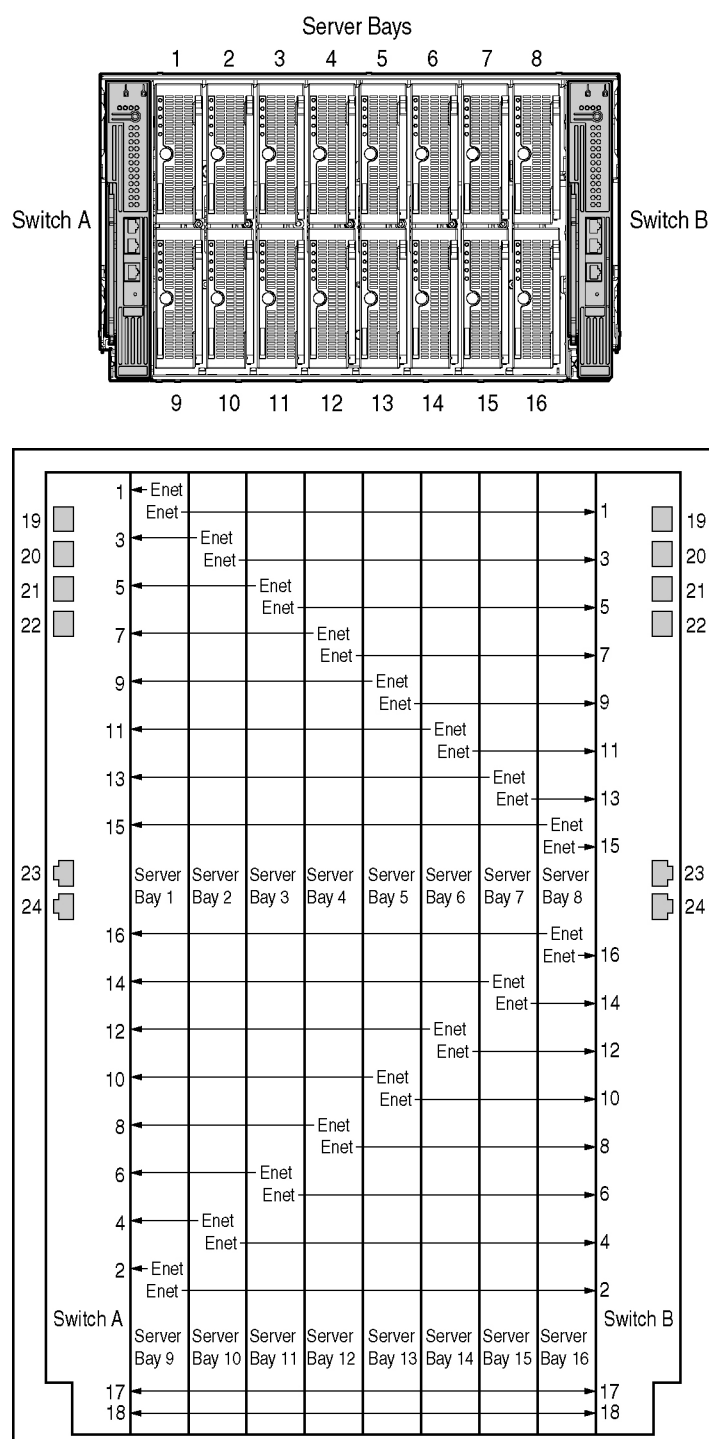


Figure 1-2: Ethernet Signal Connectivity for Server Enclosures with Enhanced Backplane Components

Front Panel

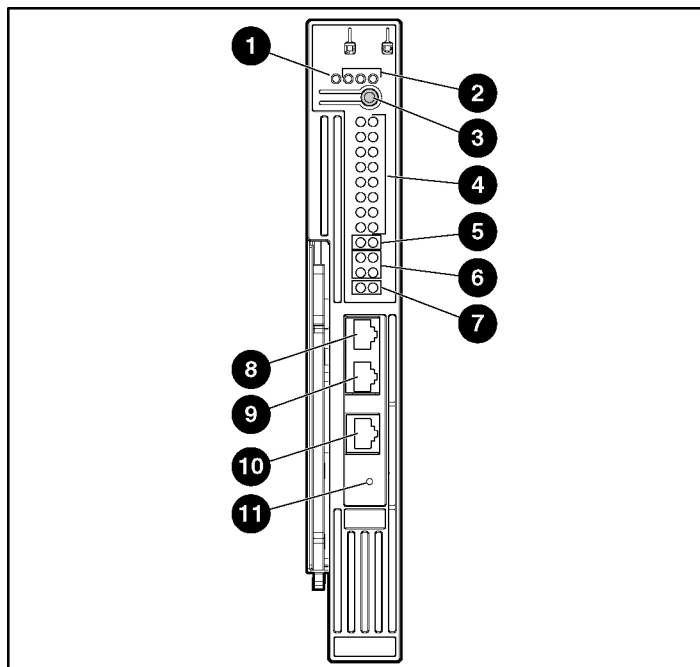


Figure 1-3: Front Panel

Table 1-1: Front Panel

Item	Description
1	System (Syst) LED
2	Mode LEDs
3	Mode button
4	Downlink ports 1-16 LEDs
5	Cross-Connect (XC) ports 17 and 18 LEDs
6	Uplink ports 19-22 LEDs
7	Front panel (FP) Ethernet ports 23 and 24 LEDs
8	Ethernet port 23
9	Ethernet port 24
10	Console port
11	Pwr/Rst button

System LED

The System (Syst) LED shows whether the system is receiving power and is functioning properly. Table 1-2 lists the LED colors and their meanings.

Table 1-2: System (Syst) LED

Color	System Status
Off	System is not powered on.
Green	System is operating normally.
Amber	System is receiving power but is not functioning properly.

Port LEDs and Modes

Each RJ-45 port and SFP module slot has a port LED. These port LEDs, as a group or individually, display information about the switch and about the individual ports. The port modes determine the type of information displayed through the port LEDs. Table 1-3 lists the mode LEDs and their associated port mode and meaning.

To select or change a mode, press the **Mode** button until the desired mode is highlighted. When you change port modes, the meanings of the port LED colors also change. Table 1-4 explains how to interpret the port LED colors in different port modes.

Table 1-3: Port Mode LEDs

Mode LED	Port Mode	Description
Stat	Port status	The port status. This is the default mode.
Dplx	Port duplex mode	The port duplex mode: full duplex or half duplex.
Spd	Port speed	The port operating speed: 10, 100, or 1000 Mbps.

Table 1-4: Meaning of LED Colors in Different Modes on the Switch

Port Mode	LED Color	Meaning
STAT (port status)	Off	No link or port was administratively shut down.
	Green	Link present.
	Blinking green	Activity. Port is transmitting or receiving data.
	Alternating green-amber	Link fault. Error frames can affect connectivity, and errors such as excessive collisions, CRC errors, and alignment and jabber errors are monitored for a link-fault indication.
	Amber	Port is blocked by Spanning Tree Protocol (STP) and is not forwarding data. Note: After a port is reconfigured, the port LED can remain amber for up to 30 seconds as STP checks the switch for possible loops.
	Blinking amber	Port is blocked by STP and is transmitting or receiving packets.
DPLX (duplex)	Off	Port is operating in half duplex.
	Green	Port is operating in full duplex.
SPD	10/100/1000 ports	
	Off	Port is operating at 10 Mbps.
	Green	Port is operating at 100 Mbps.
	Blinking green	Port is operating at 1000 Mbps.

Ethernet Ports

The switch 10/100/1000BASE-T ports configure themselves to operate at the speed of attached devices. If the attached ports do not support autonegotiation, you can explicitly set the speed and duplex parameters. Connecting devices that do not autonegotiate or that have their speed and duplex parameters manually set can reduce performance or result in no linkage.

To maximize performance, choose one of these methods for configuring the Ethernet ports:

- Let the ports autonegotiate both speed and duplex.
- Set the port speed and duplex parameters on both ends of the connection.



CAUTION: To prevent electrostatic-discharge (ESD) damage, follow your normal board and component handling procedures.

NOTE: When connecting to 10/100/1000BASE-T-compatible devices, be sure to use a twisted four-pair, Category 5 cable.

NOTE: You can use the `mdix auto` interface configuration command in the CLI to enable the automatic medium-dependent interface crossover (Auto-MDIX) feature. When the Auto-MDIX feature is enabled, the switch detects the required cable type for copper Ethernet connections and configures the interfaces accordingly. Therefore, you can use either a crossover or a straight-through cable for connections to a copper 10/100/1000BASE-T SFP module port on the switch, regardless of the type of device on the other end of the connection.

The Auto-MDIX feature is enabled by default on switches running Cisco IOS Release 12.2(25)SE1 or later. For configuration information for this feature, refer to the switch software configuration guide or the switch command reference guide.

Rear Panel

The following figure illustrates the SFP ports for the 10/100/1000BASE-T copper or 1000BASE-SX fiber uplinks (ports 19-22).

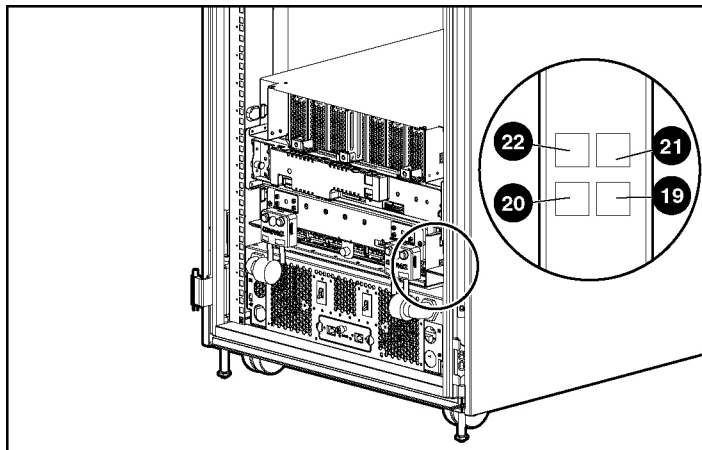


Figure 1-4: Rear Panel SFP Port Numbering

Table 1-5: SFP Module Ports

Port	Description
22	Port 22 SFP connector for 10/100/1000BASE-T copper or 1000BASE-SX fiber uplink
21	Port 21 SFP connector for 10/100/1000BASE-T copper or 1000BASE-SX fiber uplink
20	Port 20 SFP connector for 10/100/1000BASE-T copper or 1000BASE-SX fiber uplink
19	Port 19 SFP connector for 10/100/1000BASE-T copper or 1000BASE-SX fiber uplink

SFP Modules

For more information on obtaining the appropriate SFP modules, refer to the “Supported SFP Modules” section in Appendix C. The switch only supports the 10/100/1000BASE-T and 1000BASE-SX SFP modules. These transceiver modules are field-replaceable, providing the uplink interfaces when inserted in an SFP module slot. You can use the SFP modules for Gigabit uplink connections to other switches. Use fiber-optic cables with LC connectors to connect to a fiber-optic SFP module. Use Category 5 cable with RJ-45 connectors to connect to a copper SFP module.

MAC Address

The label shown in Figure 1-5 shows where to find the Base MAC address of the switch. It is not actually used on any interface. Actual MAC addresses that will be used for interfaces such as physical interfaces (GigabitEthernet 0/1 to GigabitEthernet 0/24) or logical interfaces (Vlan1, etc.) can be derived from the Base MAC address.

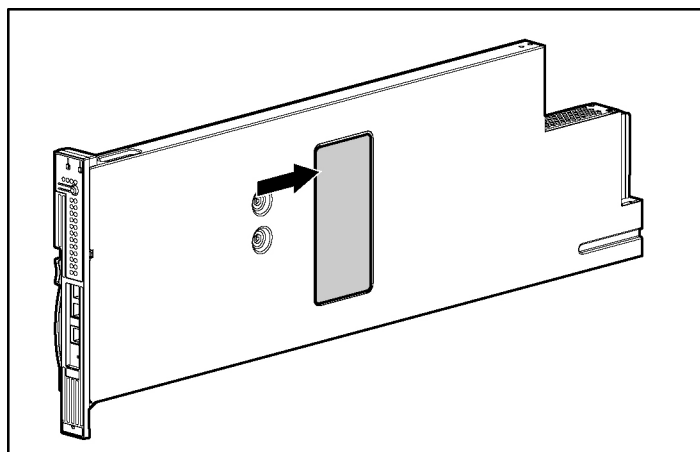


Figure 1-5: Base MAC Address (on label)

For example, if the Base MAC address for the switch is 00:0B:FC:FC:5B:00:

The first physical interface will be the Base MAC address + 1. As a result, the MAC address for the first Gigabit Ethernet interface (gi0/1, when enabled) is 00:0B:FC:FC:5B:01. The MAC address for the second Gigabit Ethernet interface (gi0/2, when enabled) will be 00:0B:FC:FC:5B:02 (and so on). MAC addresses are assigned by the system in the order in which these physical interfaces are enabled by the system.

The first VLAN interface will be the Base MAC address + 40. As a result, the MAC address for the first VLAN interface (Vlan1, etc.) will be 00:0B:FC:FC:5B:40. MAC addresses are assigned by the system in the order in which these logical interfaces are enabled by the system.

Management Options

The switch offers several management options:

- Device Manager

Device Manager is a graphical user interface that can be launched from anywhere in your network through a web browser. Device Manager is already installed on the switch, and no additional installation is required. From Device Manager, you can configure and monitor a switch or launch a telnet session to the CLI. For more information, refer to the *Cisco Gigabit Ethernet Switch Module for HP BladeSystem p-Class Software Configuration Guide* on <http://www.hp.com/support> and the online help for this application.

- Cisco IOS command-line interface (CLI)

The switch CLI is based on Cisco IOS software and is enhanced to support desktop-switching features. You can fully configure and monitor the switch and switch cluster members from the CLI. You can access the CLI either by connecting your management station directly to the switch console port or by using Telnet from a remote management station. Refer to the *Cisco Gigabit Ethernet Switch Module for HP BladeSystem p-Class Command Reference Guide* on <http://www.hp.com/support> for more information.

- CiscoView application

The CiscoView device-management application displays the switch image that you can use to set configuration parameters and to view switch status and performance information. The CiscoView application, which you purchase separately, can be a standalone application or part of a Simple Network Management Protocol (SNMP) platform. Refer to the CiscoView documentation for more information.

- SNMP network management

You can manage switches from an SNMP-compatible management station that is running platforms such as HP OpenView. The switch supports a comprehensive set of Management Information Base (MIB) extensions and four Remote Monitoring (RMON) groups. Refer to the *Cisco Gigabit Ethernet Switch Module for HP BladeSystem p-Class Software Configuration Guide* on <http://www.hp.com/support> and the documentation that came with your SNMP application for more information.

- CiscoWorks with Cluster Management Suite

You can manage multiple switches from CiscoWorks. For more information, refer to CiscoWorks documentation located at <http://www.cisco.com>.

Network Configurations

Refer to <http://www.hp.com/support> for whitepapers explaining network configuration concepts. The *Cisco Gigabit Ethernet Switch Module for HP BladeSystem p-Class Software Configuration Guide* also provides examples of network configurations that use the switch to create dedicated network segments that are interconnected through Gigabit Ethernet connections.

Switch Installation

Overview

This chapter describes how to set up and install the switch and the SFP modules.

The setup and installation process includes the following tasks:

- Installing the Switch and SFP Modules
- Planning the Switch Configuration
- Cabling the Switch
- Accessing the Switch for the First Time

NOTE: For detailed information on configuring the switch, refer to the *Cisco Gigabit Ethernet Switch Module for HP BladeSystem p-Class Software Configuration Guide* located on the HP website at <http://www.hp.com/support>.

NOTE: For the latest firmware and documentation, refer to the HP website at <http://www.hp.com/support>.

Verifying Package Contents

NOTE: Carefully remove the contents from the shipping container, and check each item for damage. If any item is missing or damaged, contact your Cisco representative or reseller for support. Return all packing material to the shipping container, and save it.

Kit contents are as follows:

Switch Kit with Copper SFP Modules

- One CGESM
- Two small form-factor pluggable (SFP) modules
- Serial Console Cable (RJ45 to DB-9)
- Quick Setup Instructions
- Limited Warranty and Material Limitations Documentation

Switch Kit without SFP Modules

NOTE: Fiber and copper SFPs are available separately.

- One CGESM
- Serial Console Cable (RJ45 to DB-9)
- Quick Setup Instructions
- Limited Warranty and Material Limitations Documentation

HP BladeSystem p-Class SAN Connectivity Kit

The HP BladeSystem p-Class SAN Connectivity Kit is an option for the Cisco Gigabit Ethernet Switch Module for HP BladeSystem p-Class, providing ProLiant BL servers with support for Fibre Channel signal pass-through connectivity. The kit may be ordered separately and installed during a new deployment or later as an upgrade.

If you are installing the kit, refer to the *HP BladeSystem p-Class SAN Connectivity Kit Quick Setup Instructions* (included with the HP BladeSystem p-Class SAN Connectivity Kit) for more information (see <http://www.hp.com/support>).

Installing the Switch and SFP Modules

This section describes how to:

- Install a new switch
- Install SFP modules

Installation Guidelines

Observe the following guidelines during installation:

- For optimal performance, it is required that the switches be installed in the server blade enclosure in pairs. Each server blade enclosure requires two switches for proper connectivity. Both switches are identical. They get their identities (Switch A or Switch B) from the server blade enclosure slots they are plugged into.
- Always install the switches into the interconnect bays, which are the left-most (side A) and right-most (side B) bays on the front side of the server blade enclosure.
- Make sure that the SFP module is fully pushed in.

IMPORTANT: Record the switch MAC address printed on the MAC address label attached to your switch. The MAC address can be used to find the IP address from a DHCP server. For more information on how to use the MAC address, refer to the “MAC Address” section in Chapter 1.

- Confirm that the operating environment is within the ranges listed in Appendix B, “Technical Specifications”.
- Make sure that cabling is away from sources of electrical noise, such as radios, power lines, and fluorescent lighting fixtures. Also make sure the cabling is safely away from other devices that might damage the cables.
- Follow the cabling guidelines below:
 - For ports, using 10/100/1000BASE-T SFP module connections, cable lengths from the switch to connected devices are up to 328 feet (100 meters).
 - For 1000BASE-SX, fiber-optic SFP module connections, each port must match the wavelength specifications on the other end of the cable, and the cable must not exceed the stipulated cable length for reliable communications.

Table 2-1 lists the cable specifications for 1000BASE-SX and 10/100/1000BASE-T SFP module connections.

Table 2-1: Fiber-Optic SFP Module Port Cabling Specifications

SFP Module	Wavelength (nanometers)	Fiber Type	Core Size (micron)	Modal Bandwidth (MHz/km)	Cable Distance
1000BASE-SX	850	MMF	62.5	160	722 feet (220 m)
			62.5	200	902 feet (275 m)
			50	400	1640 feet (500 m)
			50	500	1804 feet (550 m)
10/100/1000BASE-T					328 feet (100 meters)

Installing a Switch

If the server blade enclosure has power applied, the switch automatically begins to power up when installed. As the switch powers on, it begins POST, a series of tests that runs automatically to ensure that the switch functions properly. When the switch begins POST, the System, Status, Duplex, and Speed LEDs turn green. The System LED blinks green, and the other LEDs remain solid green.

When the POST completes successfully, the System LED remains green. The other LEDs turn off and then reflect the switch operating status. If the POST does not complete successfully, then the System LED will be Amber.

After the switch powers up, refer to Appendix D, “Configuring the Switch Using CLI”, in this guide for more information on how to configure the switch.

To install a new switch:



CAUTION: Pressing the **Pwr/Rst** button while the power status LED is green will reset the switch.



CAUTION: Do not install or remove the switch with the SFP modules already inserted. This may damage the SFP modules.

NOTE: If the server blade enclosure does not have power applied, refer to the System Setup and Installation Guide for the server blade enclosure.

Insert the switch into the enclosure.

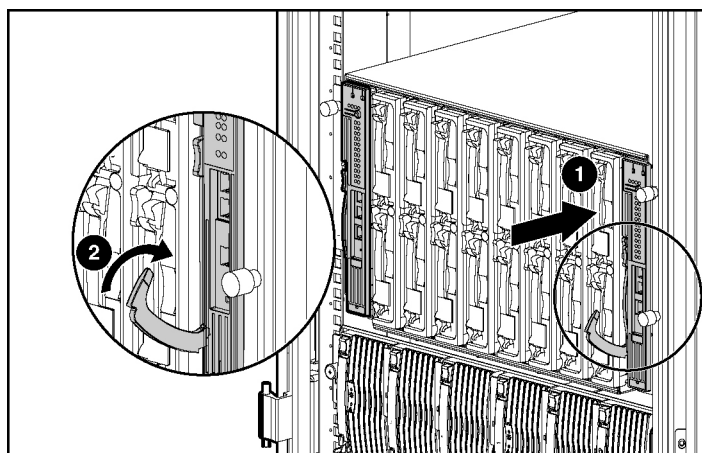


Figure 2-1: Installing the Switch

Installing SFP Modules



CAUTION: We strongly recommend that you do not install or remove fiber-optic SFP modules with cables attached because of the potential damage to the cables, the cable connector, or the optical interfaces in the SFP module. Disconnect all cables before removing or installing an SFP module.

Removing and installing an SFP module can shorten its useful life. Do not remove and insert SFP modules more often than is absolutely necessary.

To insert an SFP module into the module slot, follow these steps:

1. Attach an ESD-preventive wrist strap to your wrist and to a bare metal surface on the chassis.
2. Remove the dust cap and save for future use.

3. Insert the SFP module and close the SFP latch.

The orientation of an SFP module within a switch varies according to the SFP module port. Be sure that the SFP module is in the right position before inserting. Refer to the diagrams below.

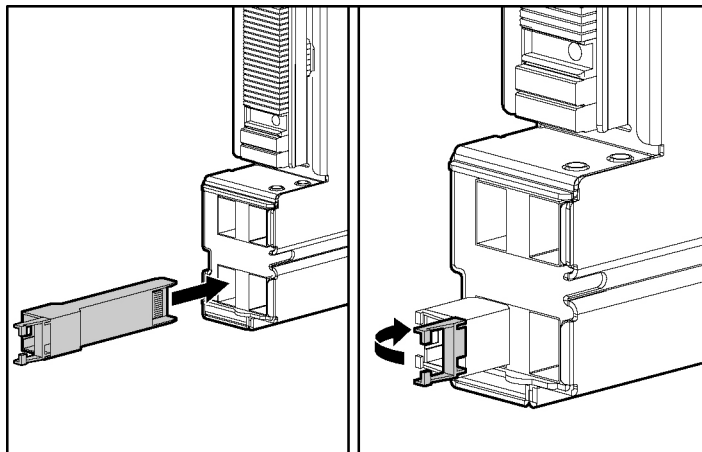


Figure 2-2: Installing an SFP Module into the Left SFP Module Slots

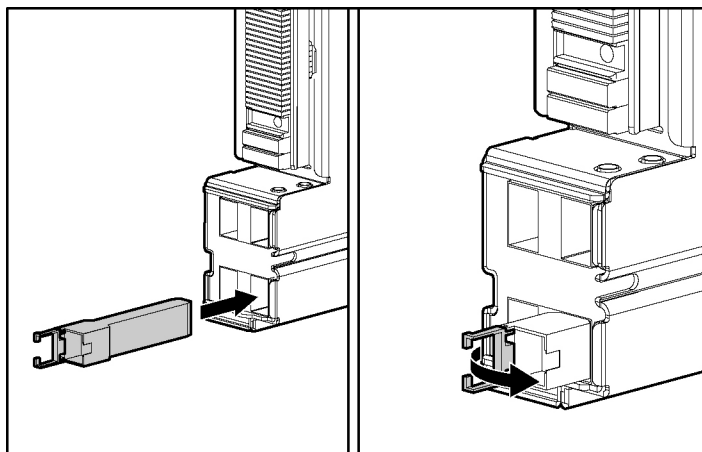


Figure 2-3: Installing an SFP Module into the Right SFP Module Slots



CAUTION: Do not remove the dust plugs from the fiber-optic SFP module port or the rubber caps from the fiber-optic cable until you are ready to connect the cable. The plugs and caps protect the SFP module ports and cables from contamination and ambient light.

Planning the Switch Configuration

Before you configure the switch, HP recommends that you plan the configuration. As you plan, consider your default settings, security issues and privileges, and whether you want to configure each switch manually or configure multiple switches at the same time.

Default Settings

The switch ships with a default configuration in which all ports are enabled except Cross-Connect ports 17 and 18. All ports are assigned a default virtual LAN (VLAN) with VLAN ID equal to 1.

For more information about planning the CGESM configuration, refer to the *Cisco Gigabit Ethernet Switch Module for HP BladeSystem p-Class Software Configuration Guide* located on the HP website at <http://www.hp.com/support>.

If you do not configure the switch at all, the switch operates with the following default settings:

- Default switch IP address, subnet mask, and default gateway is 0.0.0.0.
- Default domain name is not configured.
- DHCP client is enabled, and the DHCP server is enabled (only if the device acting as a DHCP server is configured and is enabled).
- Switch cluster is disabled.
- No passwords are defined.
- TACACS+ is disabled.
- RADIUS is disabled.
- System name and prompt is *Switch*.
- NTP is enabled.
- DNS is enabled.
- 802.1x is disabled.

- Port parameters
 - Ports 17 and 18 are administratively down.
 - Operating mode is Layer 2 (switchport).
 - Interface speed and duplex mode is autonegotiate.
 - Auto-MDIX is enabled.
 - Flow control is off.
 - Power over Ethernet (PoE) is autonegotiate.
- No Smartports macros are defined.
- VLANs
 - Default VLAN is VLAN 1.
 - VLAN trunking setting is dynamic auto (DTP).
 - Trunk encapsulation is negotiate.
 - VTP mode is server.
 - VTP version is Version 1.
 - Voice VLAN is disabled.
- For STP, PVST+ is enabled on VLAN 1. Port Fast is enabled on ports 1 to 16.
- MSTP is disabled.
- Optional spanning-tree features are disabled.
- Flex Links are not configured.
- DHCP snooping is disabled. The DHCP snooping information option is enabled.
- IP source guard is disabled.
- IGMP snooping is enabled. No IGMP filters are applied.
- IGMP throttling setting is deny.
- MVR is disabled.
- Port-based traffic
 - Broadcast, multicast, and unicast storm control is disabled.
 - No protected ports are defined.
 - Unicast and multicast traffic flooding is not blocked.
 - No secure ports are configured.
- CDP is enabled.
- UDLD is disabled.
- SPAN and RSPAN are disabled.
- RMON is disabled.

- Syslog messages are enabled and are displayed on the console.
- SNMP is disabled (Version 1).
- No ACLs are configured.
- QoS is disabled.
- No EtherChannels are configured.

Cabling the Switch

After installing the switch hardware and planning the configuration, cable the switch to your network.

IMPORTANT: If you are replacing an existing CGESM, or upgrading from a GbE2 Interconnect Switch, a GbE Interconnect Switch, an RJ-45 Patch Panel 2, or an RJ-45 Patch Panel, and you have strict security requirements:

- Do not cable the switch until after configuration.

Or

- Connect the switch to the optional Diagnostic Station. The Diagnostic Station enables you to power up, configure, and diagnose a ProLiant p-Class server blade or a switch outside of the rack environment.

To connect the switch to the network:

1. Connect your network cables to the 10/100/1000BASE-T copper or 1000BASE-SX fiber uplink SFP modules (labeled below as Port 19, 20, 21, and 22).

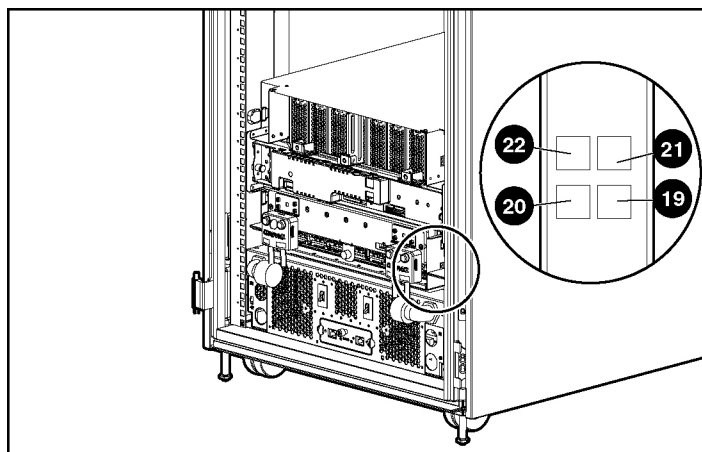


Figure 2-4: Connecting to the SFP Modules

NOTE: When connecting to 10/100/1000BASE-T SFP modules, be sure to use a twisted four-pair, Category 5 cable.

2. Gather your network cables for the right side of the rack.

3. Insert the end of the cable-retaining bracket (provided with the bus bar and power bus boxes) into the cable bracket (1).
4. Tighten the thumbscrew to secure the cable-retaining bracket over the cables (2).

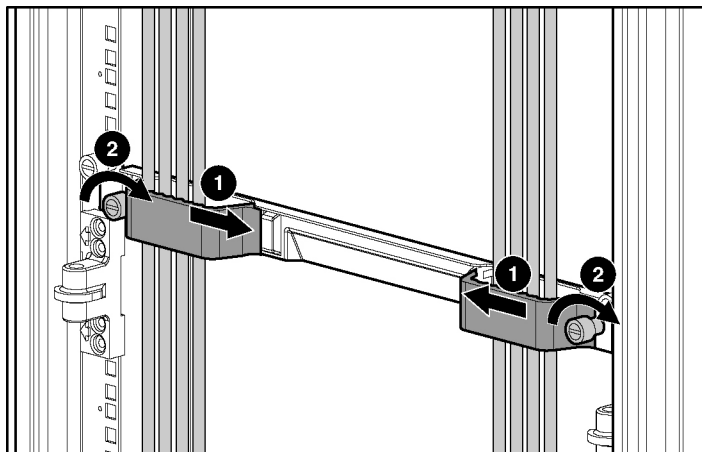


Figure 2-5: Installing the Cable-retaining Bracket

5. Repeat steps 2 through 4 for the network cables on the left side of the rack.

Accessing the Switch for the First Time

For initial configuration, the switch can be accessed locally from a workstation connected to its console port or remotely from a workstation on the network attached to any of its Ethernet ports. Depending on whether or not the switch is connected to an Ethernet network with DHCP service for IP configuration, there are multiple methods for configuring it. Depending on your current setup, choose and execute the right method described below.

Local Access from a Workstation Connected to the Switch Console Port with DHCP Service Available to the Switch

IMPORTANT: Accessing the switch locally when there is a DHCP server requires that the switch obtain its DHCP-supplied IP address before beginning the configuration procedure.

1. Power up the switch.
2. Do not press **Enter** when prompted to "Press RETURN to get started!"
As the switch boots, it brings up all the interfaces.
3. Press **Enter** when "AUTOINSTALL: VLAN1 is assigned xxx.xxx.xxx.xxx" is displayed (where xxx.xxx.xxx.xxx represents a DHCP-assigned address).
4. Press **Enter** when prompted, "Would you like to terminate autoinstall? [yes]:"

After pressing **Enter**, the switch enters the User EXEC mode and displays the "Switch>" prompt for further configuration.

Local Access from a Workstation Connected to the Switch Console Port with No DHCP Service Available to the Switch

1. Power up the switch.
2. Press **Enter** when prompted "Press RETURN to get started!"
3. Type **no** and press **Enter** twice when prompted, "Would you like to terminate autoinstall? [yes]:"
4. Type **yes** and press **Enter** when prompted, "Would you like to enter initial configuration dialog? [yes/no]:"
5. Type **yes** and press **Enter** when prompted, "Would you like to enter basic management setup? [yes/no]:"
6. Continue with the switch configuration. No default values are allowed. The passwords and IP address for VLAN1 must be specified.
7. Save the configuration and exit the setup utility.

After exiting the setup utility, the switch enters the User EXEC mode and displays the "[name of switch]>" prompt for further configuration.

Remote Access from a Workstation via Ethernet to the Switch with DHCP Service Available to the Switch

IMPORTANT: When using Express Setup, the configurator will store the DHCP-supplied IP address as a static IP address and will no longer negotiate the DHCP address on power up.

1. Power up the switch and let it boot up.
2. Open a web browser, and type the assigned DHCP address for the switch in the address field. For example, `http://xxx.xxx.xxx.xxx` (where `xxx.xxx.xxx.xxx` represents the DHCP-assigned address).
3. A popup window displays, asking, "Do you want a secured session with the switch?" Select **Yes**.
4. A popup window displays, asking, "Do you want to proceed?" Select **Yes**.
5. Click the **Configuration** tab on the left side of the window to bring up the **Express Setup** window. Continue with the switch configuration. If you enable Telnet, you will need to specify a password. If you enable SNMP, you will need to specify the Read and Write Community strings.
6. Click **Submit** to apply the configuration.

NOTE:

- The switch can be accessed via Telnet or SNMP for further configuration, once Telnet or SNMP are enabled.
- Telnet and SNMP access are disabled by default. To access via Telnet or SNMP, you must enable them.

Remote Access from a Workstation via Ethernet to the Switch with No DHCP Service Available to the Switch

If no DHCP service is available for initial access to the switch locally via Ethernet using CGESM Device Manager, then enable Express Setup mode. When the switch is in Express Setup mode, it will function as a DHCP server and assign an IP address to the switch.

IMPORTANT: DHCP server within the switch will also reply to all DHCP requests from devices attached to it. If you do not want any other devices (such as blade servers) to get a DHCP address from the switch, then disconnect or turn them OFF.

1. Power up the switch and let it boot up.
2. Once the switch completes POST, the **Syst** and **Stat** LEDs turn on solid green.
3. Press the **Mode** button and hold for 3 seconds. When the top 4 LEDs (**Syst**, **Stat**, **Dplx**, and **Spd**) turn on solid green, release the **Mode** button.
4. When the switch enters Express Setup mode, the top four LEDs (**Syst**, **Stat**, **Dplx**, and **Spd**) remain solid green. The remaining LEDs remain off.
5. The switch starts DHCP server. It assigns IP address 10.0.0.1 to itself and assigns an IP address from the same range (10.0.0.X) to the attached workstation (if DHCP is enabled on the workstation).
6. Verify that the workstation has been configured with the IP address from the switch's DHCP server. If not, enable DHCP or configure one manually so that it can communicate with the switch.
7. Open a web browser, and access the switch by typing in `http://10.0.0.1`.
8. Device Manager will prompt you to set up initial configuration in the **Express Setup** window. Continue with the switch configuration. You will need to specify an IP address for the Management Interface. If you enable Telnet, you will need to specify a password. If you enable SNMP, you will need to specify the Read and Write Community strings.
9. Click **Submit** to apply the configuration.

NOTE:

- The switch can be accessed via Telnet or SNMP for further configuration, once Telnet or SNMP are enabled.
- Telnet and SNMP access are disabled by default. To access via Telnet or SNMP, you must enable them.

Connecting to the Console Port

NOTE: The PC or terminal must support VT100 terminal emulation. The terminal-emulation software—frequently a PC application such as HyperTerminal or ProComm Plus—makes communication between the switch and your PC or terminal possible.

Follow these steps to connect the PC or terminal to the switch:

1. Configure the baud rate and character format of the PC or terminal to match these console port default characteristics:

- 9600 baud
- 8 data bits
- 1 stop bit
- No parity
- None (flow control)

After you have gained access to the switch, you can change the console baud rate through the Administration > Console Baud Rate window in the Device Manager or CiscoWorks.

2. Using the supplied RJ-45-to-DB-9 adapter cable, insert the RJ-45 connector into the console port.
3. Attach the DB-9 female DTE adapter of the RJ-45-to-DB-9 adapter cable to a PC, or attach an appropriate adapter to the terminal.
4. Start the terminal-emulation program if you are using a PC or terminal.

Running POST

To run POST, follow these steps:

1. Make sure that you have started the terminal emulation software program (such as ProComm, HyperTerminal, tip, or minicom) from your management station. See the “Connecting to the Console Port” section for information on connecting to the switch console port.
2. Press the **Pwr/Rst** button.

As the switch boots, it begins POST, a series of tests that runs automatically to ensure that the switch functions properly. When the switch begins POST, the System, Status, Duplex, and Speed LEDs turn green. The System LED blinks green, and the other LEDs remain solid green.

When the POST completes successfully, the System LED remains green. The other LEDs turn off and then reflect the switch operating status.

If a switch fails POST, the System LED turns solid amber. Contact HP. Refer to the “Where to Go for Additional Help” section in this guide for contact information.

Upgrading from a Previous Switch

Overview

This chapter describes how to upgrade to a CGESM from the following switches:

- ProLiant BL p-Class GbE2 Interconnect Switch
- ProLiant BL p-Class GbE Interconnect Switch
- ProLiant BL p-Class RJ-45 Patch Panel 2
- ProLiant BL p-Class RJ-45 Patch Panel

Upgrading from an Existing Switch or Patch Panel



CAUTION: Removing a switch from a powered enclosure **will** result in the loss of network communications between the server blade network ports that are connected through this switch and the segment of network infrastructure those ports need to communicate.

For continued blade server network communication and services availability, do the following before you remove the switch. Redirect critical high-availability services or applications to use the redundant network ports available on those blade servers that are connected through the redundant switch in the enclosure.

IMPORTANT: If you are replacing an existing CGESM, or upgrading from a GbE2 Interconnect Switch, a GbE Interconnect Switch, an RJ-45 Patch Panel 2, or an RJ-45 Patch Panel, and you have strict security requirements:

- Do not cable the switch until after configuration.

Or

- Connect the switch to the optional Diagnostic Station. The Diagnostic Station enables you to power up, configure, and diagnose a ProLiant p-Class server blade or a switch outside of the rack environment.

NOTE: By default, the CGESM has port fast enabled for the downlink ports and STP enabled for the uplink ports. During an upgrade, there will be a short STP convergence delay due to the topology change.

To upgrade from an existing GbE2 Interconnect Switch, a GbE Interconnect Switch, an RJ-45 Patch Panel 2, or an RJ-45 Patch Panel to a Cisco Gigabit Ethernet Switch Module:

NOTE: Illustrations are used for an example and may look different than your specific product.

1. Disconnect the cables from the modules on the rear side of the switch.
2. Remove the modules.

NOTE: SAN modules are supported by the CGESM. Therefore, if they are already installed you do not need to remove them.

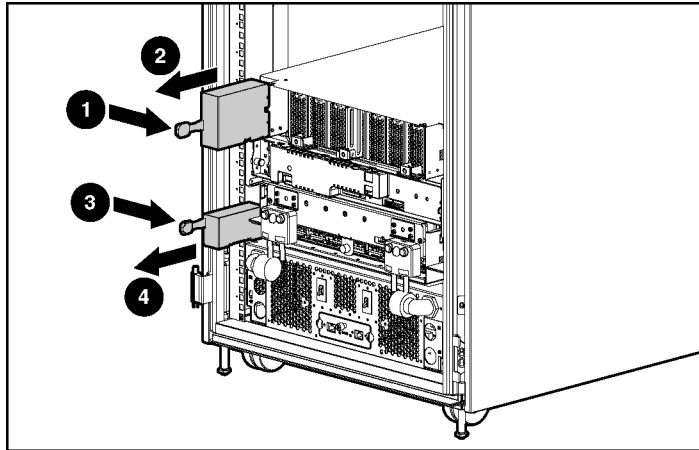


Figure 3-1: Removing the Modules

3. Remove the switch or patch panel.

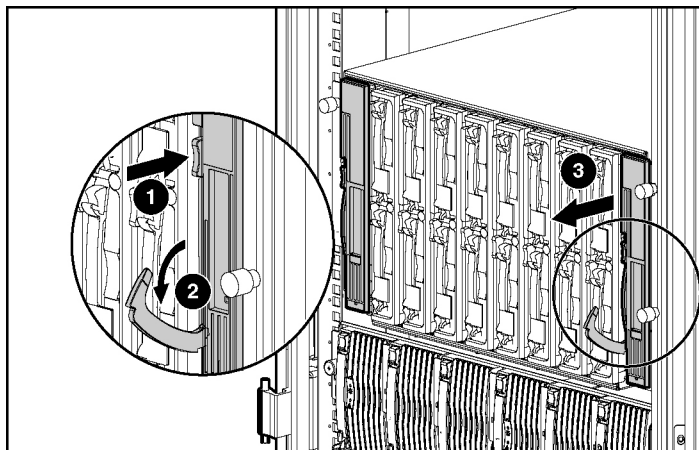


Figure 3-2: Removing an Existing Switch or Patch Panel

4. To install the new switch, refer to the instructions in the “Installing a Switch” section in Chapter 2.
5. Repeat steps 1 through 4 for the other switch in the pair.

Overview

The LEDs on the front panel provide troubleshooting information about the switch. They show failures in the power-on self-test (POST), port-connectivity problems, and overall switch performance. For a full description of the switch LEDs, see the “Front Panel” section in Chapter 1.

You can also get statistics from the Device Manager, from the command-line interface (CLI), or from a Simple Network Management Protocol (SNMP) workstation. Refer to the *Cisco Gigabit Ethernet Switch Module for HP BladeSystem p-Class Software Configuration Guide*, the *Cisco Gigabit Ethernet Switch Module for HP BladeSystem p-Class Command Reference Guide* on <http://www.hp.com/support>, or the documentation that came with your SNMP application for details.

This chapter describes these topics for troubleshooting problems:

- Understanding POST Results
- Clearing the Switch IP Address and Configuration
- Removing SFP Modules from SFP Module Slots
- Cisco Gigabit Ethernet Switch Module
- Diagnosing Problems

Understanding POST Results

As the switch powers on, it initializes Flash during which time the Sys LED blinks green. After Flash file system initiates, it begins POST, a series of tests that runs automatically to ensure that the switch functions properly. When the switch begins POST, the System, Status, Duplex, and Speed LEDs turn green. The System LED blinks green, and the other LEDs are solid green.

When the POST completes successfully, the System LED remains green. The other LEDs turn off and then reflect the switch operating status.

If a switch fails POST, the System LED turns solid amber. The other LEDs are off.

NOTE: POST failures are usually fatal. If your switch does not pass POST, you must contact HP. Refer to the “Where to Go for Additional Help” section in this guide for contact information.

Clearing the Switch IP Address and Configuration

If you have configured a new switch with a wrong IP address, or if all switch LEDs start blinking when you are trying to enter Express Setup mode, you can clear the IP address that is configured on the switch.

NOTE: This procedure clears the IP address and all configuration information stored on the switch. Do not follow this procedure unless you want to completely reconfigure the switch.

To clear the IP address and the switch configuration information, follow these steps:

1. Press and hold the **Mode** button. The switch LEDs begin blinking after about 2 seconds.

NOTE: If the switch is not configured, the LEDs are all green. You can omit Step 2 and run Express Setup to configure the switch.

2. Continue holding down the **Mode** button. The LEDs stop blinking after 8 additional seconds, and then the switch reboots.

NOTE: These steps only work on a previously configured switch.

The switch now behaves like an unconfigured switch. You can configure the switch by using Express Setup as described in Appendix E, “Configuring the Switch Using Express Setup”.

You can also configure the switch by using the command-line interface (CLI) setup procedure described in Appendix D, “Configuring the Switch Using CLI”.

Removing SFP Modules from SFP Module Slots

To remove an SFP module from a module receptacle, follow these steps:

1. Attach an ESD-preventive wrist strap to your wrist and to a bare metal surface on the chassis.
2. Disconnect the cable from the SFP module.
3. For fiber-optic SFP modules, insert a dust plug into the optical ports of the SFP module to keep the optical interfaces clean.
4. Unlock and remove the SFP module.

If the module has a bale-clasp latch, open the latch to eject the module.

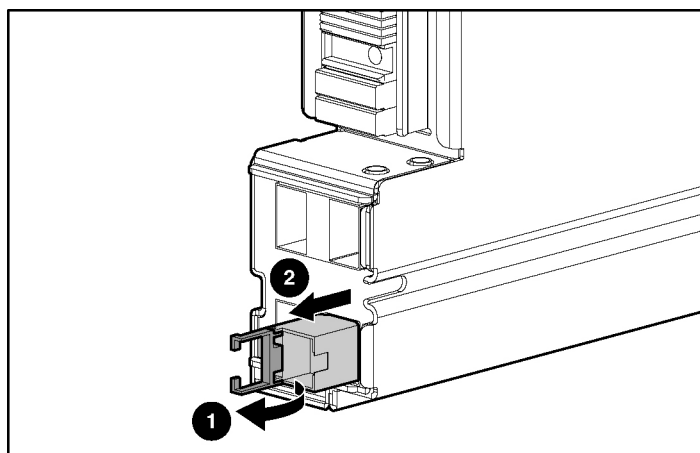


Figure 4-1: Removing a Bale-Clasp Latch SFP Module

5. Grasp the SFP module between your thumb and index finger, and carefully remove it from the module slot.
6. Place the removed SFP module in an antistatic bag.

Replacing an Existing Cisco Gigabit Ethernet Switch Module



CAUTION: Removing a switch from a powered enclosure **will** result in the loss of network communications between the server blade network ports that are connected through this switch and the segment of network infrastructure those ports need to communicate.

For continued blade server network communication and services availability, do the following before you remove the switch. Redirect critical high-availability services or applications to use the redundant network ports available on those blade servers that are connected through the redundant switch in the enclosure.



CAUTION: To prevent damage to the cable connectors and SFP modules, be sure to take the following steps before removing or installing the blade switch:

1. Disconnect the cables from the SFP modules.
2. Remove the SFP modules from the blade switch.

IMPORTANT: If you are replacing an existing CGESM, or upgrading from a GbE2 Interconnect Switch, a GbE Interconnect Switch, an RJ-45 Patch Panel 2, or an RJ-45 Patch Panel, and you have strict security requirements:

- Do not cable the switch until after configuration.

Or

- Connect the switch to the optional Diagnostic Station. The Diagnostic Station enables you to power up, configure, and diagnose a ProLiant p-Class server blade or a switch outside of the rack environment.

To replace an existing CGESM:

1. If possible, save the configuration file to a TFTP server for later retrieval. For more information on saving a configuration file to a TFTP server, refer to the *Cisco Gigabit Ethernet Switch Module for HP BladeSystem p-Class Software Configuration Guide* located on the HP website at <http://www.hp.com/support>.
2. Disconnect any cables from the SFP modules on the rear side of the switch.
3. Remove the SFP modules.

4. Remove the switch from the enclosure.

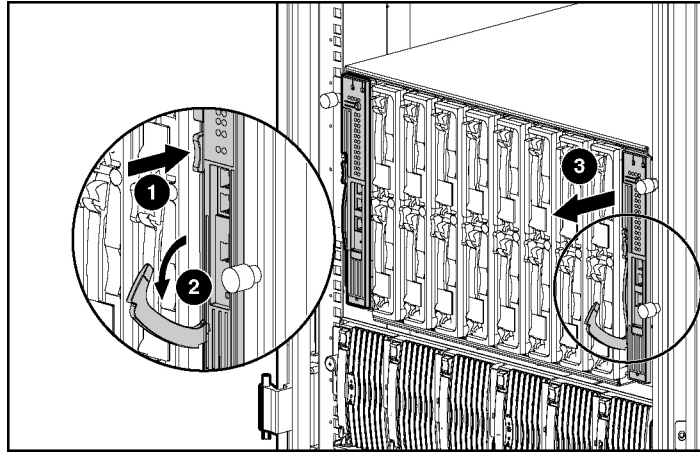


Figure 4-2: Removing the Switch

5. To install the new switch, refer to the instructions in the “Installing a Switch” section in Chapter 2.

If you saved the configuration file to a TFTP server, download the configuration. For more information on downloading a configuration file, refer to the *Cisco Gigabit Ethernet Switch Module for HP BladeSystem p-Class Software Configuration Guide* located on the HP website at <http://www.hp.com/support>.

Diagnosing Problems

The LEDs on the front panel provide troubleshooting information about the switch. They show POST failures, port-connectivity problems, and overall switch performance. For a full description of the switch LEDs, see the “Front Panel” section in Chapter 1.

You can also get statistics from the Device Manager, from the CLI, or from an SNMP workstation. Refer to the *Cisco Gigabit Ethernet Switch Module for HP BladeSystem p-Class Software Configuration Guide*, the *Cisco Gigabit Ethernet Switch Module for HP BladeSystem p-Class Command Reference Guide* on <http://www.hp.com/support>, or the documentation that came with your SNMP application for details.

You can access the Technical Support Website (<http://www.hp.com/support>) for a list of known hardware problems and extensive troubleshooting documentation including:

- Field notices
- Security advisories
- Troubleshooting resources
- Factory defaults
- Password recovery
- Recovery from corrupted or missing software
- Switch port problems
- Network interface cards
- Troubleshooting tools

Common switch problems fall into these categories:

- Poor performance
- No connectivity
- Corrupted software

Table 4-1 describes how to detect and resolve these problems.

Table 4-1: Troubleshooting –Common Problems and Solutions

Problem	Possible Cause	Possible Solution
Poor performance or excessive errors	Duplex autonegotiation mismatch	Refer to the <i>Cisco Gigabit Ethernet Switch Module for HP BladeSystem p-Class Software Configuration Guide</i> for information on identifying autonegotiation mismatches.
	Cabling distance exceeded Port statistics show excessive frame check sequence (FCS), late-collision, or alignment errors. For 10/100/1000BASE-T connections:	Refer to the <i>Cisco Gigabit Ethernet Switch Module for HP BladeSystem p-Class Software Configuration Guide</i> for information on displaying port statistics.
	<ul style="list-style-type: none"> The distance between the port and the attached device exceeds 328 feet (100 meters). 	Reduce the cable length to within the recommended distance.
	<ul style="list-style-type: none"> If the switch is attached to a repeater, the total distance between the two end stations exceeds the cabling guidelines. 	Refer to your repeater documentation for cabling guidelines.
	For SFP port connections:	
	<ul style="list-style-type: none"> The distance between the SFP port and the attached device exceeds the SFP cabling guidelines. 	Refer to your SFP documentation for cabling guidelines.
	Bad adapter in attached device	
	Excessive errors found in port statistics.	Run adapter card diagnostic utility.
	STP checking for possible loops.	Wait 30 seconds for the port LED to turn green.
No connectivity	Incorrect or bad cable These are results of no link at both ends:	
	A crossover cable was used when a straight-through was required, or vice-versa.	For the correct pinouts and the proper application of crossover vs. straight-through cables, see the "Two Twisted-Pair Cable Pinouts" section in Appendix C.
	The cable is wired incorrectly.	Replace with a tested good cable.
	A crossover or straight-through cable is wired incorrectly.	For 10/100/1000BASE-T connections, be sure to use a twisted four-pair, Category 5 cable.
	STP checking for possible loops.	Wait 30 seconds for the port LED to turn green.

continued

Table 4-1: Troubleshooting –Common Problems and Solutions *continued*

Problem	Possible Cause	Possible Solution
Unreadable characters on the management console	Incorrect baud rate	Reset the emulation software to 9600 baud.
Amber system LED	Fatal POST error detected.	Contact HP. Refer to the “Where to Go for Additional Help” section in this guide for contact information.
The switch port is placed in error-disabled state after SFP is inserted.	Bad or non-Cisco-approved SFP.	<ol style="list-style-type: none"> 1. Remove the SFP module from the switch, and replace it with a Cisco-approved module. Use the errdisable recovery cause gbic-invalid global configuration command to verify the port status, and enter a time interval to recover from the error-disable state. Note: You can obtain SFP modules from HP. For more information, refer to Appendix C, “Connector and Cable Specifications”. 2. Refer to the <i>Cisco Gigabit Ethernet Switch Module for HP BladeSystem p-Class Command Reference Guide</i> on the HP website at http://www.hp.com/support for information on the errdisable recovery command.
Switch does not recognize the SFP module	The SFP module might be installed improperly.	Verify that the SFP module is installed properly. For more information on installing an SFP module, refer to the “Installing SFP Modules” section in Chapter 2.
	The SFP module does not snap into the slot.	<ol style="list-style-type: none"> 1. Remove the SFP module. Inspect for physical damage to the connector, the module, and the module slot. 2. Replace the SFP module with a known good SFP module.

Regulatory Compliance Notices

Federal Communications Commission Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at personal expense.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Hewlett-Packard Company may void the user's authority to operate the equipment.

Cables

Connections to this device must be made with shielded cables with metallic RFI/EMI connector hoods in order to maintain compliance with FCC Rules and Regulations.

Canadian Notice (Avis Canadien)

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

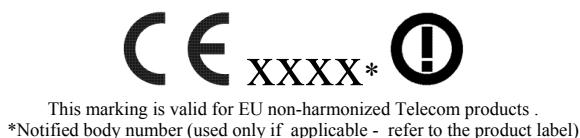
European Union Regulatory Notice

This product complies with the following EU Directives:

- Low Voltage Directive 73/23/EEC
- EMC Directive 89/336/EEC

Compliance with these directives implies conformity to applicable harmonized European standards (European Norms), which are listed on the EU Declaration of Conformity, issued by Hewlett-Packard for this product or product family.

This compliance is indicated by the following conformity marking placed on the product:



BSMI Notice

警告使用者：

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Japanese Notice

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Korean Notice

A급 기기 (업무용 정보통신기기)

이 기기는 업무용으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이 점을 주의하시기 바라며, 만약 잘못판매 또는 구입하였을 때에는 가정용으로 교환하시기 바랍니다.

Laser Compliance

The fiber optic module contains a laser that is classified as a “Class 1 Laser Product” in accordance with US FDA regulations and the IEC 60825-1. The product does not emit hazardous laser radiation.



WARNING: Use of controls or adjustments or performance of procedures other than those specified herein or in the laser product’s installation guide may result in hazardous radiation exposure. To reduce the risk of exposure to hazardous radiation:

- Do not try to open the module enclosure. There are no user-serviceable components inside.
 - Do not operate controls, make adjustments, or perform procedures to the laser device other than those specified herein.
 - Allow only HP Authorized Service technicians to repair the unit.
-

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products on August 2, 1976. These regulations apply to laser products manufactured from August 1, 1976. Compliance is mandatory for products marketed in the United States. This device is classified as a Class 1 laser product as defined by IEC 60825-1.

Technical Specifications

Table B-1: Switch Specifications

Environmental Ranges	
Operating temperature	50 to 95°F (10 to 35°C)
Storage temperature	–22 to 140°F (–30 to 60°C)
Relative humidity	20 to 85% (noncondensing)
Operating altitude	Up to 10,000 ft (3049 m)
Storage altitude	Up to 15,000 ft (4573 m)
Power Requirements	
DC input voltage	-48 VDC, 2.6 A
Power consumption	125 W
Physical Dimensions	
Weight	11.6 lb (5.22 kg)
Dimensions (H x D x W)	1.6 x 28.4 x 10.4 in. (4.06 x 71.12 x 26.42 cm)

Table B-2: Switch Agency Approvals

Safety	EMC
UL to UL 60950, Third Edition	FCC Part 15 Class A
c-UL to CAN/CSA -C22.2 No. 60950-00, Third Edition	EN 55022 1998 Class A (CISPR 22)
	EN 55024 1998 Class A (CISPR 24)
CB to IEC 60950 with all country deviations	VCCI Class A
	AS/NZS 3548 Class A
CE Marking	CNS13438 Class A
	CD
	MIC

Connector and Cable Specifications

Overview

This appendix describes the switch ports and the cables and adapters that you use to connect the switch to other devices.

Connector Specifications

These sections describe the connectors used with the switch.

10/100/1000 Ports

The 10/100/1000 Ethernet ports on the switch use standard RJ-45 connectors. Figure C-1 shows the pinout.

NOTE: You can use the `mdix auto` interface configuration command in the CLI to enable the automatic medium-dependent interface crossover (Auto-MDIX) feature. When the Auto-MDIX feature is enabled, the switch detects the required cable type for copper Ethernet connections and configures the interfaces accordingly. Therefore, you can use either a crossover or a straight-through cable for connections to a copper 10/100/1000BASE-T SFP module port on the switch, regardless of the type of device on the other end of the connection.

The Auto-MDIX feature is enabled by default on switches running Cisco IOS Release 12.2(25)SE1 or later. For configuration information for this feature, refer to the switch software configuration guide or the switch command reference guide.

Connecting to 10BASE-T- and 100BASE-TX-Compatible Devices

When connecting the ports to 10BASE-T- and 100BASE-TX-compatible devices, such as servers, workstations, and routers, you can use a two or four twisted-pair, straight-through cable wired for 10BASE-T and 100BASE-TX. Figure C-4 shows the two twisted-pair, straight-through cable schematics. Figure C-6 shows the four twisted-pair, straight-through cable schematics.

When connecting the ports to 10BASE-T- and 100BASE-TX-compatible devices, such as switches or repeaters, you can use a two or four twisted-pair, crossover cable. Figure C-5 shows the two twisted-pair, crossover cable schematics. Figure C-7 shows the four twisted-pair, crossover cable schematics.

You can use Category 3, 4, or 5 cabling when connecting to 10BASE-T-compatible devices. You must use Category 5 cabling when connecting to 100BASE-TX-compatible devices.

Connecting to 1000BASE-T Devices

When connecting the ports to 1000BASE-T devices, such as servers, workstations, and routers, you must use a four twisted-pair, Category 5, straight-through cable wired for 10BASE-T, 100BASE-TX, and 1000BASE-T. Figure C-6 shows the straight-through cable schematics.

When connecting the ports to other devices, such as switches or repeaters, you must use a four twisted-pair, Category 5, crossover cable. Figure C-7 shows the crossover cable schematics.

NOTE: Be sure to use a four twisted-pair, Category 5 cable when connecting to a 10/100/1000BASE-T-compatible device.

NOTE: Use a straight-through cable to connect two ports only when one port is designated with an X. Use a crossover cable to connect two ports when both ports are designated with an X or when both ports do not have an X.

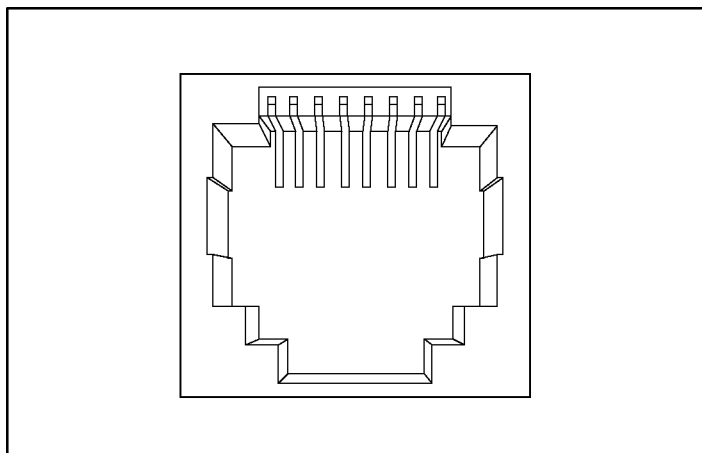


Figure C-1: 10/100/1000 Port Pinouts

SFP Module Ports

The switch uses SFP modules for fiber-optic and copper uplink ports.

Supported SFP Modules

Table C-1: SFP Part Numbers

Part Number	Description
378929-B21 (fiber)	XBLp-F Cisco Enet SFP Mod ALL
378928-B21 (copper)	XBLp-C Cisco Enet SFP Mod ALL

SFP Module Port Connectors

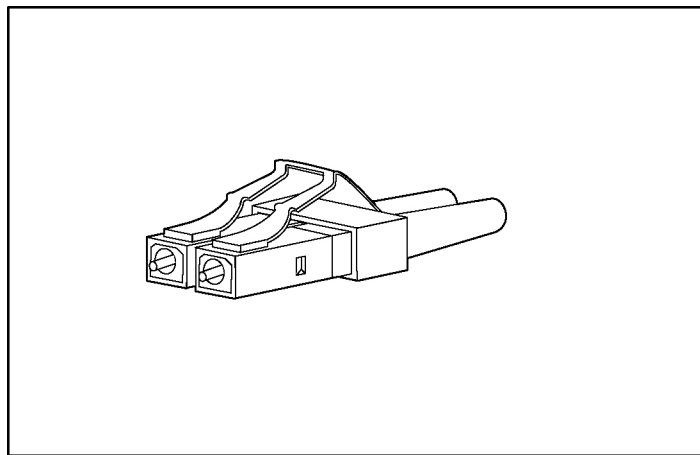


Figure C-2: Fiber-Optic SFP Module LC Connector



WARNING: Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments.

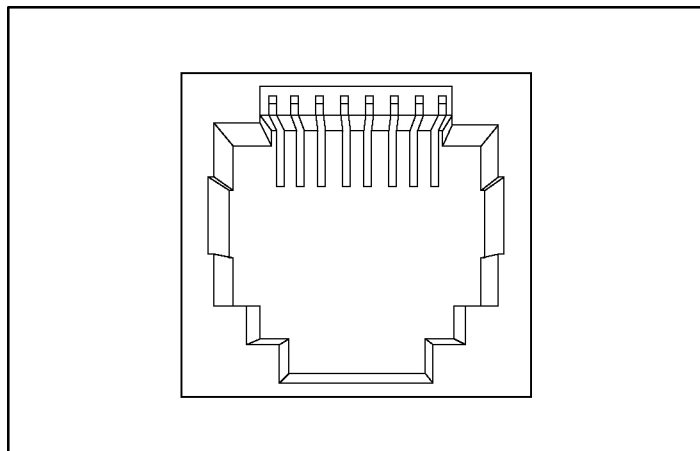


Figure C-3: Copper SFP Module RJ-45 Connector

Console Port

The console port uses an 8-pin RJ-45 connector, which is described in Table C-2 and Table C-3. The supplied RJ-45-to-DB-9 serial console cable is used to connect the console port of the switch to a console PC. For console port and adapter pinout information, see Table C-2 and Table C-3.

Cable and Adapter Specifications

These sections describe the cables and adapters used with switches.

Two Twisted-Pair Cable Pinouts

Figure C-4 and Figure C-5 show the schematics of two twisted-pair cables for connecting to 10BASE-T- and 100BASE-TX-compatible devices.

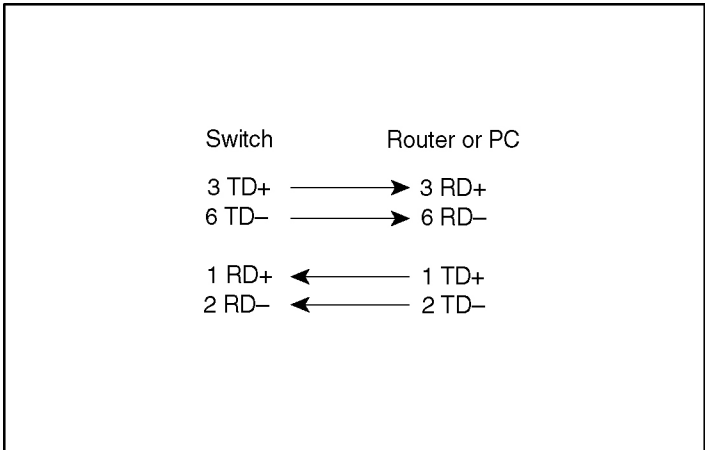


Figure C-4: Two Twisted-Pair Straight-Through Cable Schematic

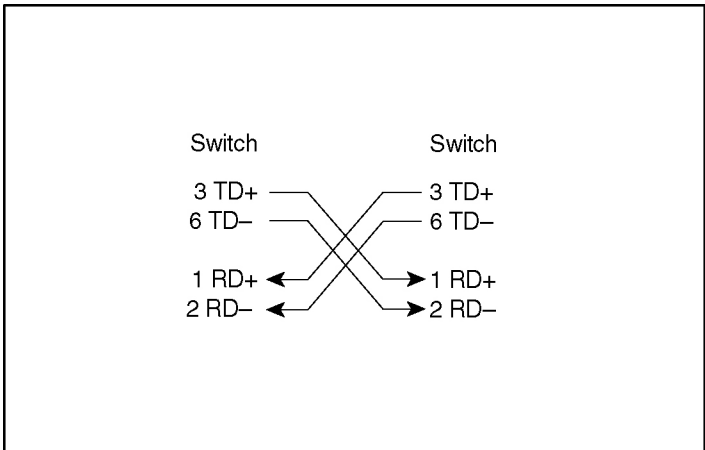


Figure C-5: Two Twisted-Pair Crossover Cable Schematic

Four Twisted-Pair Cable Pinouts for 1000BASE-T Ports

Figure C-6 and Figure C-7 show the schematics of four twisted-pair cables for 10/100/1000 ports on switches.

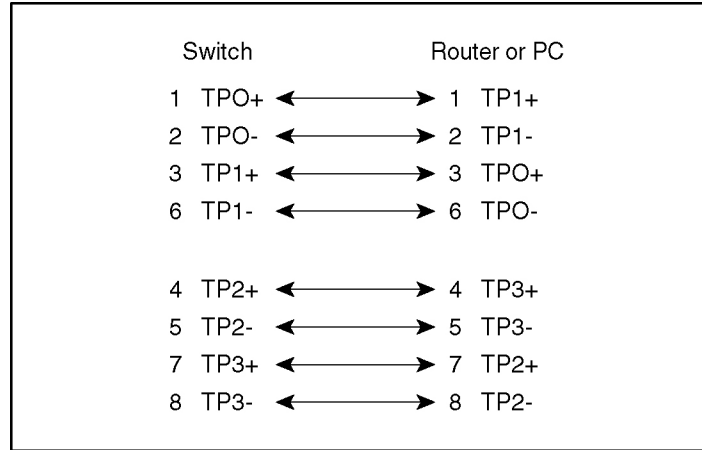


Figure C-6: Four Twisted-Pair Straight-Through Cable Schematic for 10/100/1000 Ports

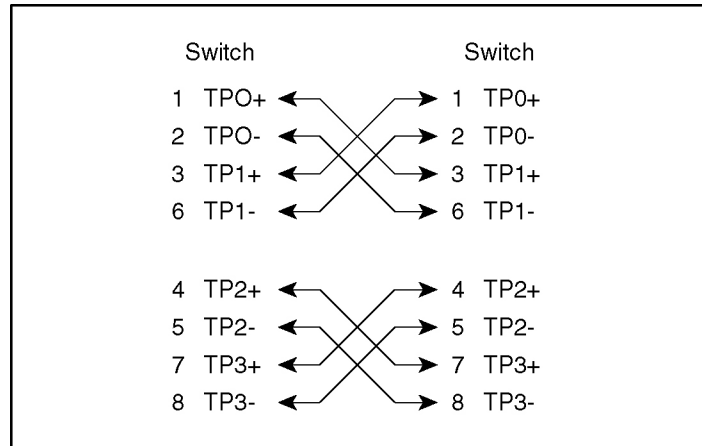


Figure C-7: Four Twisted-Pair Crossover Cable Schematics for 10/100/1000 Ports

Crossover Cable and Adapter Pinouts

This section describes how to identify a crossover cable and also describes the adapter pinouts.

Identifying a Crossover Cable

To identify a crossover cable, compare the two modular ends of the cable. Hold the cable ends side-by-side, with the tab at the back. The wire connected to the pin on the outside of the left plug should be the same color as the wire connected to the pin on the outside of the right plug. See the following figure.

NOTE: Pin 1 on one connector and pin 8 on the other connector should be the same color.

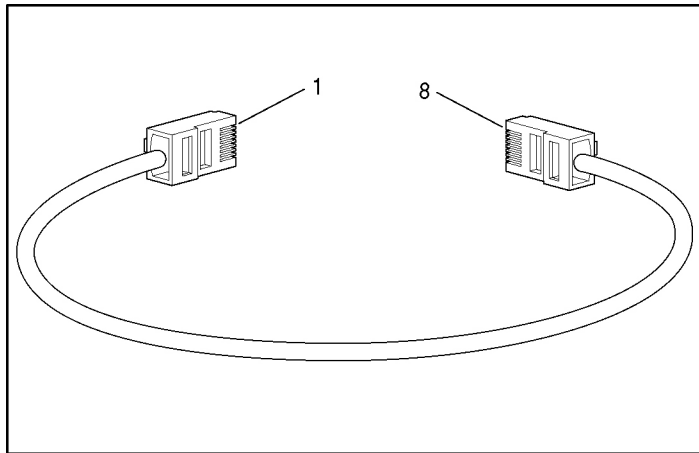


Figure C-8: Identifying a Crossover Cable

Serial Console Cable Pinouts

The following table lists the pinouts for the console port, the RJ-45-to-DB-9 console cable, and the console device.

Table C-2: Console Port Signaling Using a DB-9 Adapter

Switch Console Port (DTE)	RJ-45-to-DB-9 Console Cable	Console Device
Signal	DB-9 Pin	Signal
RTS	8	CTS
DTR	6	DSR
TxD	2	RxD
GND	5	GND
GND	5	GND
RxD	3	TxD
DSR	4	DTR
CTS	7	RTS

The following table lists the pinouts for the console port, RJ-45-to-DB-25 female DTE adapter, and the console device.

Table C-3: Console Port Signaling Using a DB-25 Adapter

Switch Console Port (DTE)	RJ-45-to-DB-25 Terminal Adapter	Console Device
Signal	DB-25 Pin	Signal
RTS	5	CTS
DTR	6	DSR
TxD	3	RxD
GND	7	GND
GND	7	GND
RxD	2	TxD
DSR	20	DTR
CTS	4	RTS

Configuring the Switch Using CLI

Overview

This chapter provides quick installation and setup procedures.

NOTE: For detailed switch installation instructions or information on connecting to the small form-factor pluggable (SFP) modules, see Chapter 2, “Switch Installation.” For product overview information, see Chapter 1, “Product Overview.”

These steps describe how to do a simple installation:

- Accessing the CLI Through the Console Port
- Connecting to the Console Port
- Starting the Terminal Emulation Software
- Entering the Initial Configuration Information

Accessing the CLI Through the Console Port

You can access the CLI on a configured or unconfigured switch by connecting the console port of the switch to the serial port on your PC or workstation and accessing the switch through a terminal emulation program such as HyperTerminal.

To access the switch through the console port, follow the steps in the sections listed below:

- “Connecting to the Console Port” section
- “Starting the Terminal Emulation Software” section
- “Entering the Initial Configuration Information” section

NOTE: You can use the **mdix auto** interface configuration command in the CLI to enable the automatic medium-dependent interface crossover (Auto-MDIX) feature. When the Auto-MDIX feature is enabled, the switch detects the required cable type for copper Ethernet connections and configures the interfaces accordingly. Therefore, you can use either a crossover or a straight-through cable for connections to a copper 10/100/1000BASE-T SFP module port on the switch, regardless of the type of device on the other end of the connection.

The Auto-MDIX feature is enabled by default on switches running Cisco IOS Release 12.2(25)SE1 or later. For configuration information for this feature, refer to the switch software configuration guide or the switch command reference guide.

Connecting to the Console Port

You can use the console port to perform the initial configuration. To connect the switch console port to a PC, use the supplied RJ-45-to-DB-9 serial console cable.

Follow these steps to connect the PC or terminal to the switch:

1. Using the supplied RJ-45-to-DB-9 serial console cable, insert the RJ-45 connector into the console port on the front of a switch.
2. Attach the DB-9 female DTE of the adapter cable to a PC serial port, or attach an appropriate adapter to the terminal.

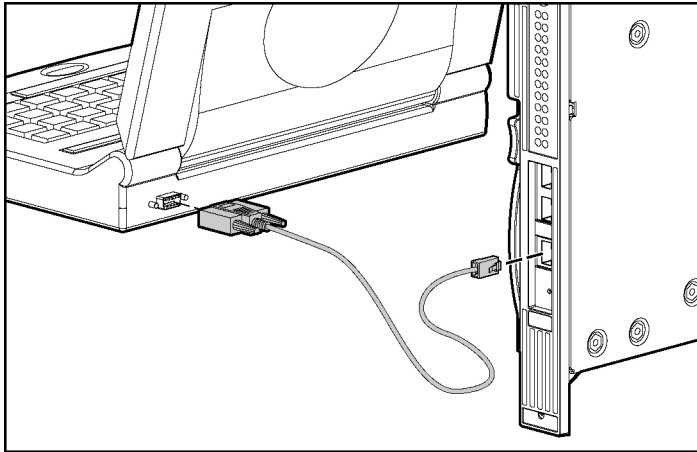


Figure D-1: Connecting a Switch to a PC

Starting the Terminal Emulation Software

Before you power on the switch, start the terminal emulation session so that you can see the output display from the power-on self-test (POST). The terminal-emulation software—frequently a PC application such as HyperTerminal or ProComm Plus—makes communication between the switch and your PC or terminal possible.

1. Start the terminal-emulation program if you are using a PC or terminal.
2. Start a terminal-emulation session.
3. Configure the baud rate and character format of the PC or terminal to match these console port default characteristics:
 - 9600 baud
 - 8 data bits
 - 1 stop bit
 - No parity
 - None (flow control)

Power on the Switch

To power on the switch, insert the switch into the enclosure. As the switch powers on, it begins POST, a series of tests that run automatically to ensure that the switch functions properly. If POST fails, contact HP. Refer to the “Where to Go for Additional Help” section in this guide for contact information.

If you started the terminal emulation program before you powered on your switch, the PC or terminal displays the boot loader sequence. You need to press **Enter** to display the setup program prompt.

Entering the Initial Configuration Information

To set up the initial configuration of the switch, you can complete the setup program, which runs automatically (if the switch is not already configured) after the switch is powered up. Also, initial configuration can be manually done from the switch CLI by typing commands, if you do not want to use setup program. You must assign an IP address and other configuration information necessary for the switch to communicate with the local routers and the Internet. This information is also required if you plan to use the Device Manager or CiscoWorks to configure and manage the switch.

Required Information

You will need this information from your network administrator before you complete the setup program:

- Switch IP address (if you are not using DHCP)
- Subnet mask (IP netmask)
- Default gateway (router)
- Enable secret password
- Enable password
- Telnet password

Configuration Using DHCP

If the **Enter** key is hit too soon after the message "Press RETURN to get started." displays, then the communication with the DHCP server will be terminated prematurely. This will also cause the Management Interface VLAN to be marked administratively down if setup is not entered.

If the **Enter** key is hit more than 15 minutes after the DHCP server has assigned the IP address, no prompts will be presented.

Completing the Setup Program

Follow these steps to complete the setup program and to create an initial configuration for the switch:

1. Enter **Yes** at these two prompts.

```
Would you like to enter the initial configuration dialog? [yes/no]:
```

```
yes
```

```
At any point you may enter a question mark '?' for help. Use ctrl-c to  
abort configuration dialog at any prompt. Default settings are in square  
brackets '[]'.
```

```
Basic management setup configures only enough connectivity for management  
of the system, extended setup will ask you to configure each interface on  
the system.
```

```
Would you like to enter basic management setup? [yes/no]: yes
```

2. Enter a host name for the switch, and press **Return**.

On a command switch, the host name is limited to 28 characters. On a member switch, it is limited to 31 characters. Do not use *-n*, where *n* is a number, as the last character in a host name for any switch.

```
Enter host name [Switch]: host_name
```


3. Enter an enable secret password, and press **Return**.

The password can be from 1 to 25 alphanumeric characters, can start with a number, is case sensitive, allows spaces, but ignores leading spaces. The secret password is encrypted and the enable password is in plain text.

Enter enable secret: *secret_password*

4. Enter an enable password, and press **Return**.

Enter enable password: *enable_password*

5. Enter a virtual terminal (Telnet) password, and press **Return**.

The password can be from 1 to 25 alphanumeric characters, is case sensitive, allows spaces, but ignores leading spaces.

Enter virtual terminal password: *terminal-password*

6. (Optional) Configure Simple Network Management Protocol (SNMP) by responding to the prompts. You can also configure SNMP later through the CLI or CiscoWorks interface. To configure SNMP later, enter **no**.

Configure SNMP Network Management? [no]: **no**

7. Enter the interface name (physical interface or VLAN name) of the interface that connects to the management network, and press **Return**. For this release, always use *vlan1* as that interface.

Enter interface name used to connect to the management network from the above interface summary: **vlan1**

8. Configure the interface by entering the switch IP address and subnet mask and pressing **Return**. The IP address and subnet masks shown below are examples.

Configuring interface *vlan1*:

Configure IP on this interface? [yes]: **yes**

IP address for this interface: *10.4.120.106*

Subnet mask for this interface [255.0.0.0]: *255.0.0.0*

9. Enter **Y** to configure the switch as the cluster command switch. Enter **N** to configure it as a member switch or as a standalone switch.

If you enter **N**, the switch appears as a candidate switch in CiscoWorks. You can configure the switch as a command switch later through the CLI or CiscoWorks interface. To configure it later, enter **no**.

Would you like to enable as a cluster command switch? [yes/no]: **no**

You have now completed the initial configuration of the switch, and the switch displays its initial configuration. This is an example of output that appears:

The following configuration command script was created:

```
hostname host_name
enable secret 5 $1$U1q8$D1A/OiaEbl90WcBPd9cOn1
enable password enable_password
line vty 0 15
password terminal-password
```

```
no snmp-server
!
no ip routing
!
interface Vlan1
no shutdown
ip address 10.4.120.106 255.0.0.0
!
interface FastEthernet1/0/1
!
interface FastEthernet1/0/2
interface FastEthernet1/0/3
!
...<output abbreviated>
!
interface GigabitEthernet2/0/28
!
end
```

10. These choices are displayed:

- [0] Go to the IOS command prompt without saving this config.
- [1] Return back to the setup without saving this config.
- [2] Save this configuration to nvram and exit.

If you want to save the configuration and use it the next time the switch reboots, save it in NVRAM by selecting option 2.

Enter your selection [2]:2

Make your selection, and press **Return**.

After you complete the setup program, the switch can run the configuration that you created. If you want to change this configuration or want to perform other management tasks, use one of these tools:

- Command-line interface (CLI)
- CiscoWorks

To use the CLI, enter commands at the *host_name*> prompt through the console port by using a terminal program or through the network by using telnet. For configuration information, refer to the switch software configuration guide or the switch command reference guide.

Refer to the switch software configuration guide for instructions on how to use CiscoWorks.

Configuring the Switch Using Express Setup

Overview

Express Setup is a browser-based program that you can use to set up and configure the switch. You assign the IP information so that the switch can connect to local routers and the Internet. The IP address is also required if you plan to further configure the switch.

For setup instructions using the command line interface (CLI)-based setup program, refer to Appendix D, “Configuring the Switch Using CLI.”

The setup procedure is described in the following sections:

- Running Express Setup
- Configuring the Switch Settings
- Managing the Switch
- In Case of Difficulty

Before you open the Express Setup page, you need the following information from your system administrator:

- Fixed IP address (unless you are using a DHCP)
- Subnet mask (IP netmask)
- Default gateway IP address

You can also configure these optional parameters through the Express Setup program:

- Local access password
- Telnet access password
- Names of the Simple Network Management Protocol (SNMP) read and write community strings if you are going to use a network-management program like CiscoWorks
- Host name, system contact, and system location

NOTE: Your PC should have a recent web browser installed to run Express Setup.

You need to provide an Ethernet (Category 5) straight-through cable (not included), as shown in Figure E-1, to connect the switch to your PC or workstation.

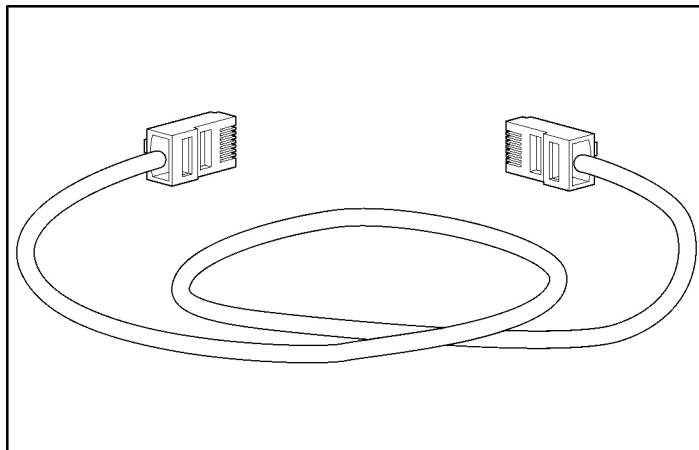


Figure E-1: Ethernet Cable

Running Express Setup



CAUTION: Do not connect the switch to any device other than the PC or workstation being used to configure it. During Express Setup, the switch acts as a DHCP server and responds to DHCP requests from the devices attached to it.

When you first set up the switch, you can use Express Setup to enter the initial IP information. Then the switch can connect to local routers and the Internet, and you can access the switch through the IP address for further configuration.

To run Express Setup:

1. Verify that no devices are connected to the switch. This is because during Express Setup, the switch acts as a DHCP server. If your PC has a static IP address, then before you begin you should change your PC settings to temporarily use DHCP.
2. Insert the switch into the enclosure.

The switch powers on when it is inserted into the BladeSystem chassis and immediately begins the power-on self-test (POST), a series of tests that runs automatically to ensure that the switch functions properly. POST lasts approximately 2 minutes. When the POST completes successfully, the SYST and STAT LED remain green. The other LEDs turn off and then reflect the switch operating status.

If a switch fails POST, the System LED turns amber. If POST fails, contact HP. Refer to the “Where to Go for Additional Help” section in this guide for contact information.

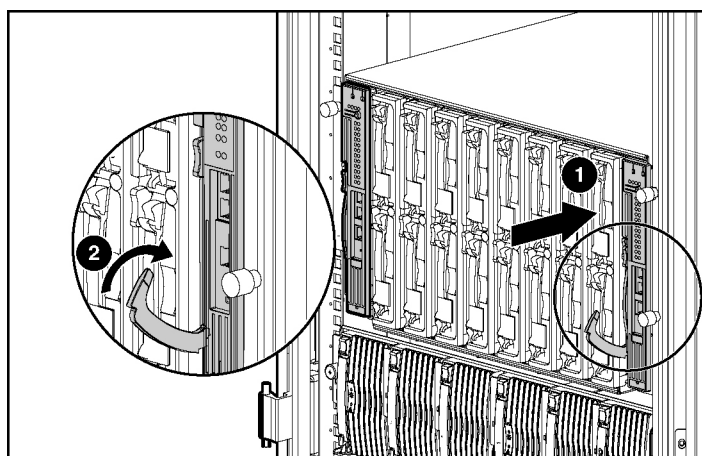


Figure E-2: Installing the Switch

3. Wait for the switch to complete POST, which might take several minutes.
After POST completes, the Sys and Stat LEDs turn green.
4. Press and hold the **Mode** button for 3 seconds. When all of the LEDs next to the **Mode** button turn green, release the button. See Figure E-3.

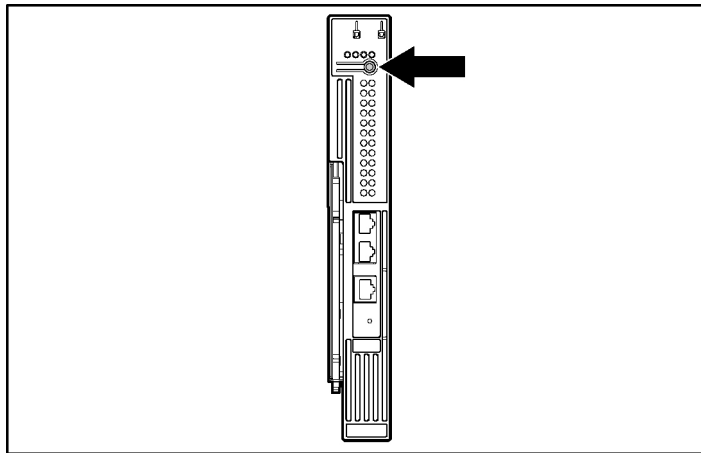


Figure E-3: Starting Express Setup

If the LEDs next to the **Mode** button begin to blink after you press the button, release it. Blinking LEDs mean that the switch has already been configured and cannot go into Express Setup mode. For more information, refer to the “Resetting the Switch” section in this chapter.

5. Verify that the switch is in Express Setup mode by confirming that all LEDs next to the **Mode** button are green.
6. Connect a straight-through Category 5 Ethernet cable (not included) to any Ethernet port that is located on the front of the switch as shown in Figure E-4.

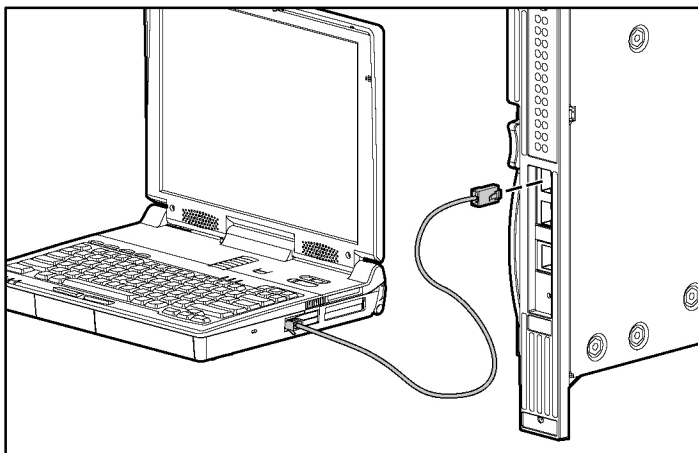


Figure E-4: Connecting the Switch to the PC or Workstation Ethernet Ports

7. Verify that the LEDs on both connected Ethernet ports are green.
8. Wait approximately 30 seconds *after* the port LEDs turn green.
9. Launch a web browser on your PC or workstation, enter the IP address **10.0.0.1** (as shown in Figure E-5), and press **Enter**.

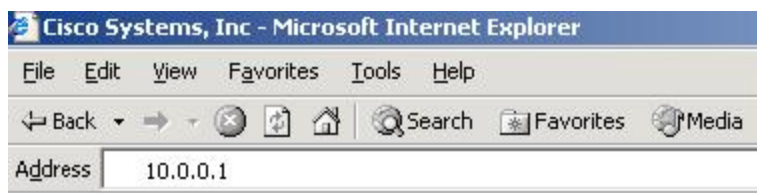


Figure E-5: Entering the IP Address

The Express Setup window appears, as shown in Figure E-6.

NOTE: If the Express Setup window does not appear, refer to the “In Case of Difficulty” section in this appendix.

NOTE: The Express Setup page will not allow you to submit your entries until the management interface IP address is supplied.

A screenshot of the Cisco Express Setup web interface. The window has a title bar with "Refresh", "Print", and "Help" buttons. The main content area is divided into two sections: "Network Settings" and "Optional Settings".
Network Settings:
- Management Interface (VLAN ID): 1
- IP Address: [Four empty boxes for octets]
- Subnet Mask: 255.255.255.0
- Default Gateway: [Four empty boxes for octets]
- Switch Password: [Empty text box]
- Confirm Switch Password: [Empty text box]
Optional Settings:
- Host Name: Switch
- System Contact: [Empty text box]
- System Location: [Empty text box]
- Telnet Access: Radio buttons for "Enable" and "Disable" (Disable is selected)
- Telnet Password: [Empty text box]
- Confirm Telnet Password: [Empty text box]
- SNMP: Radio buttons for "Enable" and "Disable" (Disable is selected)
- SNMP Read Community: [Empty text box]
- SNMP Write Community: [Empty text box]
At the bottom of the form are "Submit" and "Cancel" buttons. The browser's status bar at the bottom shows "Done" and "Internet".

Figure E-6: Express Setup Window

Configuring the Switch Settings

NOTE: Before you configure the switch settings, you need to know the management VLAN ID, the IP address, the IP subnet mask, and the default gateway for your switch. If you do not have this information, obtain it from your network administrator.

1. Enter the following information in the **Network Settings** fields:
 - a. In the **Management Interface (VLAN ID)** field, the default is 1. Enter a new VLAN ID only if you want to change the management interface through which you manage the switch and to which you assign IP information. The VLAN ID range is 1 to 1001.
 - b. In the **IP Address** field, enter the IP address of the switch.

NOTE: If the management interface of the switch will be using an IP address supplied by a DHCP server, you will need to configure your VLAN using CLI with "ip address dhcp" after Express Setup completes.

 - c. In the **IP Subnet Mask** field, click the drop-down arrow, and select an **IP Subnet Mask**.
 - d. In the **Default Gateway** field, enter the IP address for the default gateway (router).
A gateway (router or dedicated network device) is a system that connects a network on one subnet to one or more networks on a different subnet. You must specify a default gateway if the management workstation and the switch are on different IP segments.
 - e. In the **Switch Password** field, enter your password. The password can be from 1 to 25 alphanumeric characters, can start with a number, is case sensitive, allows embedded spaces, but does not allow spaces at the beginning or end.
 - f. In the **Confirm Switch Password** field, enter your password again.
2. (Optional) You can enter the **Optional Settings** information now or enter it later by using the Device Manager interface:
 - a. In the **Host Name** field, enter a name for the switch. The host name is limited to 31 characters; embedded spaces are not allowed.
 - b. In the **System Contact** field, enter the name of the person responsible for the switch.
 - c. In the **System Location** field, enter the wiring closet, floor, or building where the switch is located.
 - d. In the **Telnet Access** field, click **Enable** if you are going to use Telnet to manage the switch by using the CLI. If you enable Telnet access, you must enter a Telnet password.
 - e. In the **Telnet Password** field, enter a password. The Telnet password can be from 1 to 25 alphanumeric characters, is case sensitive, allows embedded spaces, but does not allow spaces at the beginning or end.
 - f. Enter the Telnet password again in the **Confirm Telnet Password** field.
 - g. In the **SNMP** field, click **Enable** to enable Simple Network Management Protocol (SNMP). Enable SNMP only if you plan to manage switches by using CiscoWorks2000 or another SNMP-based network-management system.

- h. If you enable SNMP, you must enter a community string in the **SNMP Read Community** field, the **SNMP Write Community** field, or both. SNMP community strings authenticate access to MIB objects. Embedded spaces are not allowed in SNMP community strings. When you set the SNMP read community, you can access SNMP information, but cannot modify it. When you set the SNMP write community, you can access and modify SNMP information.
3. Click **Submit** to save your settings to the switch, or click **Cancel** to clear your settings.

When you click **Submit**, the switch is configured and exits Express Setup mode. The PC displays a warning message and then attempts to connect with the new switch IP address. If you configured the switch with an IP address that is in a different subnet from the PC, connectivity between the PC and the switch is lost.
4. Disconnect the switch from the PC, and install the switch in your production network. See the “Managing the Switch” section for information about configuring and managing the switch.

If you need to rerun Express Setup, refer to the “Resetting the Switch” section for more information.

Refreshing the PC IP Address

After you complete Express Setup, you should refresh the PC IP address.

For a dynamically assigned IP address, disconnect the PC from the switch, and reconnect it to the network. The network DHCP server will assign a new IP address to the PC.

For a statically assigned IP address, change it to the previously configured IP address.

Verifying Switch IP Address

This procedure is optional. After you have installed the switch in your network, follow these steps to verify the IP address configured on your switch:

1. Launch a web browser on a PC or workstation that is connected the same network to which your newly configured switch is also connected.
2. Enter the IP address of your switch (for example: 192.168.2.30). The switch Device Manager window appears, as shown in Figure E-7.

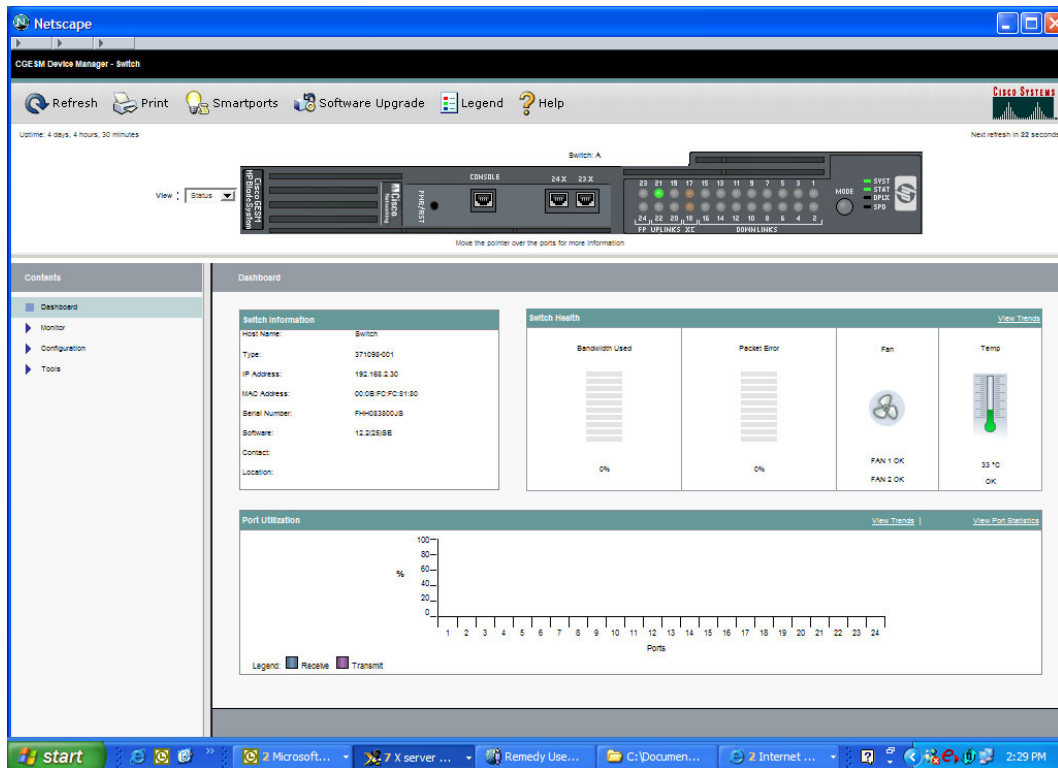


Figure E-7: CGESM Device Manager Window

Managing the Switch

After completing Express Setup and installing the switch in your network, use the Device Manager or the CLI to further configure the switch.

Using the Device Manager

The simplest way to manage the switch is by using the Device Manager that is in the switch memory. This is an easy-to-use web interface that offers quick configuration and monitoring. You can access the Device Manager from anywhere in your network through a web browser.

Follow these steps:

1. Launch a web browser on your PC or workstation.
2. Enter the switch IP address in the web browser, and press **Enter**. The Device Manager page appears.
3. Use the Device Manager to perform basic switch configuration and monitoring. Refer to the Device Manager online help for more information.

Using Command-Line Interface

You can enter Cisco IOS commands and parameters through the CLI. Access the CLI either by connecting your PC directly to the switch console port or through a Telnet session from a remote PC or workstation.

Follow these steps for the console port connections:

1. Connect the supplied RJ-45-to DB-9 adapter cable to the standard 9-pin serial port on the PC. Connect the other end of the cable to the console port on the switch.
2. Start a terminal-emulation program on the PC.
3. Configure the PC terminal emulation software for 9600 baud, 8 data bits, no parity, 1 stop bit, and no flow control.
4. Use the CLI to enter commands to configure the switch. Refer to the software configuration guide and the command reference guide for more information.

In Case of Difficulty

If you experience difficulty, help is available here and on <http://www.hp.com/support>. This section includes Express Setup troubleshooting, how to reset the switch, how to access help online, and where to find more information. If you need additional help, refer to the “Where to Go for Additional Help” section in this guide.

Troubleshooting Express Setup

If Express Setup does not run, or if the Express Setup page does not appear in your browser:

<ul style="list-style-type: none">• Did you verify that POST successfully ran before starting Express Setup?	If not, make sure that only the SYST and STAT LEDs are green before pressing the Mode button to enter the Express Setup mode.
<ul style="list-style-type: none">• Did you press the Mode button while the switch was still running POST?	If yes, wait until POST completes. Power cycle the switch. Wait until POST completes. Confirm that the SYST and STAT LEDs are green. Press the Mode button to enter Express Setup mode.
<ul style="list-style-type: none">• Did you try to continue without confirming that the switch was in Express Setup mode?	Verify that all LEDs next to the Mode button are green. If necessary, press the Mode button to enter Express Setup mode.
<ul style="list-style-type: none">• Does your PC have a static IP address?	If yes, before connecting to the switch change your PC settings to temporarily use DHCP.
<ul style="list-style-type: none">• Did you connect a crossover cable instead of a straight-through Ethernet cable between a switch port and the Ethernet port of the PC?	If yes, connect a straight-through cable to an Ethernet port on the switch and PC. Wait 30 seconds before entering 10.0.0.1 in the browser.
<ul style="list-style-type: none">• Did you connect the Ethernet cable to the console port instead of to an Ethernet port on the switch?	If yes, disconnect from the console port. Connect to an Ethernet port on the switch and PC. Wait 30 seconds before entering 10.0.0.1 in the browser.
<ul style="list-style-type: none">• Did you wait 30 seconds after connecting the switch and PC before entering the IP address in your browser?	If not, wait 30 seconds, re-enter 10.0.0.1 in the browser, and press Enter .
<ul style="list-style-type: none">• Did you enter the wrong address in the browser, or is there an error message?	If yes, re-enter 10.0.0.1 in the browser, and press Enter .

Resetting the Switch

This section describes how to reset the switch by rerunning Express Setup. These are reasons why you might want to reset the switch:

- You installed the switch in your network and cannot connect to it because you assigned the wrong IP address.
- You want to clear all configuration from the switch and assign a new IP address.
- You are trying to enter Express Setup mode and the switch LEDs start blinking when you press the **Mode** button (which means that the switch is already configured with IP information).



CAUTION: Resetting the switch deletes the configuration and reboots the switch.

To reset the switch, press and hold the **Mode** button. The switch LEDs begin blinking after about 2 seconds. Continue holding down the **Mode** button. The LEDs stop blinking after 8 more seconds, and then the switch reboots.

The switch now behaves like an unconfigured switch. You can enter the switch IP information by using Express Setup as described in the “Running Express Setup” section in this chapter.

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